AMENDMENTS IN THE CLAIMS

Please cancel claim 39. Please amend claims 16-19, 25, 40-42 and 44 as indicated in the complete listing of claims given below:

1-15. (canceled)

16. (currently amended) A method of writing a light guiding structure comprising the steps of:

providing a ~~bulk~~ glass substrate formed from a silica-based material, the glass substrate not being ~~hydrogen~~ H_2-loaded; and

focusing a beam output from a below 300 nm laser within said substrate while translating the focused beam relative to the substrate along a scan path at a scan speed effective to densify and induce an increase in the refractive index of the material along the scan path relative to that of the unexposed material while incurring substantially no laser induced breakdown of the material along the scan path, wherein the glass substrate remains not H_2-loaded during the focusing step,

thereby forming an optical waveguide having a core formed from the densified material; and a cladding surrounding the core, the cladding being formed from the silica-based material.

17. (currently amended) A method as claimed in claim 16, wherein said ~~bulk~~ glass substrate has a substantially homogenous composition.

18. (currently amended) A method as claimed in claim 16, wherein said ~~bulk~~ glass substrate has a substantially homogenous refractive index.

19. (currently amended) A method as claimed in claim 18 wherein said ~~bulk~~ glass substrate has an optical index homogeneity of $\Delta n \leq 5$ ppm.

20-24. (canceled)

25. (currently amended) A method of making a three dimensional structure within an interior of a glass body, said method comprising the steps of:

providing a glass body, said glass body having an interior, said interior having a homogeneous composition and refractive index, said glass body not being ~~hydrogen~~ H_2-loaded,

providing a laser beam and a lens,

coupling said laser beam into said lens to form a converging focused laser beam having an intensity at its focus sufficient to increase the refractive index of the composition of the interior of the glass body, and

positioning said focus inside said glass body interior and controlling relative motion between said focus and said glass body, wherein the glass body remains not H_2-loaded during the positioning step,

thereby forming a raised refractive index waveguiding core within the interior of said glass body, said raised refractive index waveguiding core being ~~cladded~~ clad in all directions perpendicular to the axis of the waveguide core by the composition of the interior of said glass body.

26. (previously amended) A method as claimed in claim 25, wherein said glass body has a first exterior side and a second exterior side, said first exterior side lying in a first plane, said second exterior side lying in a second plane, said second plane being non-parallel to said first plane, wherein said waveguiding core traverses the glass body from an input at said first exterior side to an output at said second exterior side.

27. (previously amended) A method as claimed in claim 25, said glass body having a planar exterior base side, wherein said waveguiding core traverses the glass body in a plane non-parallel to said planar base side.

28. (previously amended) A method as claimed in claim 25, wherein said method includes forming a first raised refractive index waveguiding densified core path in the glass body, a second raised refractive index waveguiding densified core path in the glass body, and a third raised refractive index waveguiding densified core path in the glass body, wherein said third core is in a plane separate from said first core and said second core.

29. (previously amended) A method as claimed in claim 25, wherein said composition is homogeneously doped with a glass softening dopant.

30. (previously amended) A method as claimed in claim 25, wherein said interior of said glass body has an index homogeneity of $\Delta n \leq 5$ ppm.

31. (previously amended) A method as claimed in claim 25, wherein said laser beam has a wavelength λ_{Laser}, and said glass body has an internal transmission of at least 50%/cm at λ_{Laser}.

32. (previously amended) A method as claimed in claim 25, wherein the difference between the refractive index of the waveguiding core and the refractive index of the unexposed interior of the glass body is at least 1 X 10^{-5} at 633 nm.

33. (previously amended) A method as claimed in claim 25, wherein the difference between the refractive index of the waveguiding core and the refractive index of the unexposed interior of the glass body is at least 1 X 10^{-4} at 633 nm.

34. (previously amended) A method as claimed in claim 25, wherein the laser beam is output from an excimer laser.

35. (previously amended) A method as claimed in claim 25, wherein the laser beam is output from a solid state laser.

36. (previously amended) A method as claimed in claim 25, wherein the laser beam is output from a 193nm excimer laser.

37. (previously amended) A method as claimed in claim 25, wherein the laser beam is output from a 248nm excimer laser.

38. (previously amended) A method as claimed in claim 25, wherein said method includes forming a first raised refractive index waveguiding densified core in the glass

body and a second raised refractive index waveguiding densified core in the glass body, wherein said first core is optically coupled to said second core.

39. (canceled)

40. (currently amended) A method as claimed in claim 16, wherein at least part of the core of the optical waveguide is at least 1 cm from each surface of the glass substrate.

41. (currently amended) A method as claimed in claim 25, wherein at least part of the core of the waveguide is at least 1 cm from each surface of the glass body.

42. (currently amended) A method as claimed in claim 16, wherein the glass substrate has a thickness at least one thousand times the thickness of the core of the optical waveguide.

43. (previously added) A method as claimed in claim 25, wherein the glass body has a thickness at least one thousand times the thickness of the core of the waveguide.

44. (currently amended) A method as claimed in claim 16, wherein the ~~silica-based glass~~ glass substrate is free of germanium.

45. (previously added) A method as claimed in claim 25, wherein the composition of the interior of the glass body is free of germanium.